NAVSEA
NAVAL SEA SYSTEMS COMMAND

Miniature/Microminiature (2M) Module Test & Repair (MTR) Brief @ Strategic Planning Meeting (8/28/01)

GOLD DISK

SIGNATURES

PARTS LIST

DRAWINGS

AN/USM 646

2M

TROUBLESHOOT

REPAIR
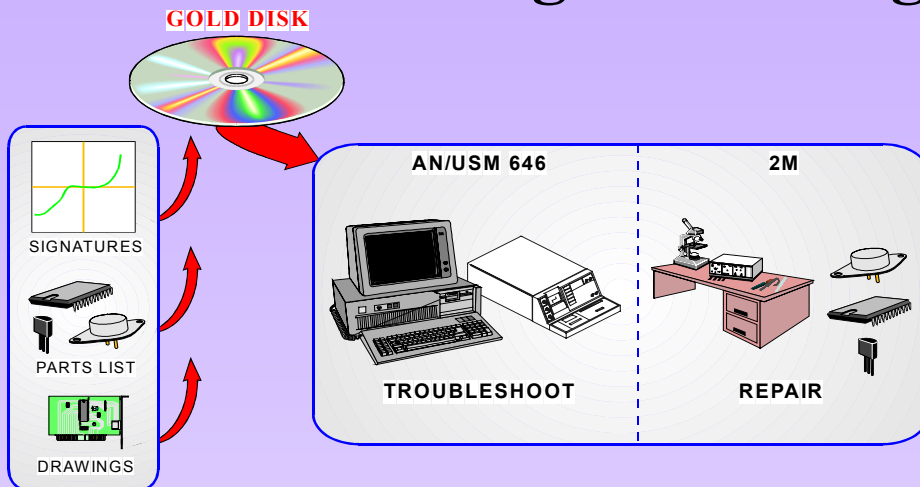
2M MTR PROGRAM HOME PAGES

WWW.CRANE.NAVY.MIL/2M

HTTPS://WWW.NOR.NUWC.NAVY.MIL/MTR

Tom Ingram SEA04M32
DSN 326-3380
COM 202-781-3380
IngramTW@NAVSEA.NAVY.MIL
Building 197, 4E 2086

SEA 04M32 Responsibilities

2M MTR Equipment Outfitting (O/I Level)

- 292 Ships and Shore Commands
- 21 Submarines (FY 01-03 planned)
- 7 CNET Training Commands (3 Courses)
- 10 FTSCs 2M MTR Inspector Sites
- New Equipment Evaluation/Selection
- 2M MTR Equipment ILS
- 2M Piece Part APLs (41 Ship Class & 20 Shore)

New Ship, System PM, SYSCOM, FMS and other Services/USCG Interface

2M MTR Program Processes

Gold Disk Development/Distribution

2M Certification/ Site Review Support

Why have 2M MTR trained technicians at O/I Level ?

System level technicians not trained to repair below Circuit Card Assembly or Electronic Module level.

Systems not spared with 100% CCA/EM and off ship supply delays cause excessive system downtime.

Afloat/ashore Navy & DLA Supply Inventories reduced.

Post Cold War transition resulted in DOD organic and private industry maintenance/supply issues; (DMS, Depot infrastructure reduction, alternate support processes, reduced funding).

 2M MTR Capabilities improve Readiness, reduce ship/system life cycle costs and enhance Sailor Q of L.

NAVSEA — NAVAL SEA SYSTEMS COMMAND

NAVMAT chartered 2M Repair Programs for HW SYSCOMs
in 1975 to standardize effective soldering processes, tools and training.

NAVSEA assumed 2M Program responsibilities for SPAWAR in 1986.

NAVSEA Program expanded to include test/diagnostics capabilities
and 2M Piece parts in 1980s (2M ATE Program evolved to 2M MTR in 1991)

NAVSEA assumed lead Navy SYSCOM role for 2M Program in 1993.

"Gold Disk" capability introduced in 1989 and expanded to all
O level from 1994-99.

RMIB affirmed 2M MTR 0/I Level Requirements in 1998 and 2000.
JFMM and NAVSUP P485 provide policy, procedures and responsibilities.

2M MTR
Program Infrastructure

NAVSEA
NAVAL SEA SYSTEMS COMMAND

CNO N43
2M MTR Resource Sponsor

NAVSEA 04M32
2M/MTR Program/ILS Manager

NSWC Crane
Code 6083

2M Equipment ISEA/TDA
- 2M Certifying Agent
- Piece Part Outfitting (SCN)

NAVICP-M
Mechanicsburg
Code 058

- 2M Piece Part Support
- 2M/MTR Equipment Support
- Gold Disk Candidate List Data
- CCA/EM Requisition Data
- BOSS Funds for Gold Disks

NUWC DET FEO
NORFOLK
Code 201V

MTR Equipment ISEA/TDA
- Gold Disk Development Mgr
- GD Verification/Distribution
- 2M Piece Part Allowances

GOLD DISK DEVELOPERS
- **SPAWAR/SEA/AIR Field Act.**
- **Navy IMAs and Training Cmds**
- **Naval/USMC Aviation IMAs**
- **USCG (Surface/Aviation)**
- **USMC (Ground)**
- **USAF MAJCOMs**
- **USA**

FTSCLANT 4103
FTSCPAC 203
FTSCLANT/PAC DETs

2M Inspectors/FSE

Seven 2M/MTR
Training Commands

6

Navy 2M MTR
Gold Disk Infrastructure

NAVSEA
NAVAL SEA SYSTEMS COMMAND

HQMC (I&L/P&R)
MARCORPSYSCOM
(TMDE)

CNO (N43)
NAVSEA 04M32

USMC (GROUND)
Echelon 3 & 4 Cmds

Surface Ships, Subs,
Shore Commands

NUWCDET
FEO NORFOLK
NSWC CRANE

NAVAL AVIATION
AIMDs, MALS & NADEPS

1. Maintain standard 2M MTR
Gold Disk hardware, software and
ILS.

2. Obtain maximum synergy from
shared and unique infrastructure.

CNO (N78)
NAVAIR (AIR 3.6, PMA 260D)

Training for MTR Test Equipment & 2M Repair

NAVSEA — NAVAL SEA SYSTEMS COMMAND

Course

Completion of all courses results in NEC 1591

AN/USM-646 A-100-0076 5 days	Miniature Electronic Repair A-100-0072 26 days NEC 9527	Microminiature Electronic Repair A-100-0073 12 days NEC 9526

Course Location

Instructor (9509) & Inspector (9503)

FTC Norfolk *	FTC Norfolk	FTC Norfolk
FTC Mayport	FTC Mayport	FTC Mayport
FTC San Diego	FTC San Diego *	FTC San Diego *
NAMTRAGRUDET Whidbey Is.	NAMTRAGRUDET Whidbey Is.	NAMTRAGRUDET Whidbey Is.
ATG MIDPAC (JUNE 2000)	ATG MIDPAC (Pearl Harbor)	ATG MIDPAC Pearl Harbor
ATG WESTPAC (AUG 2000)	NAMTRAGRUDET Atsugi, Japan	NAMTRAGRUDET Atsugi, Japan
	ATG WESTPAC (AUG 2000)	ATG WESTPAC (AUG 2000)

*Course Curriculum Model Manager

Microscope, tools, ESD material and consumables not shown.

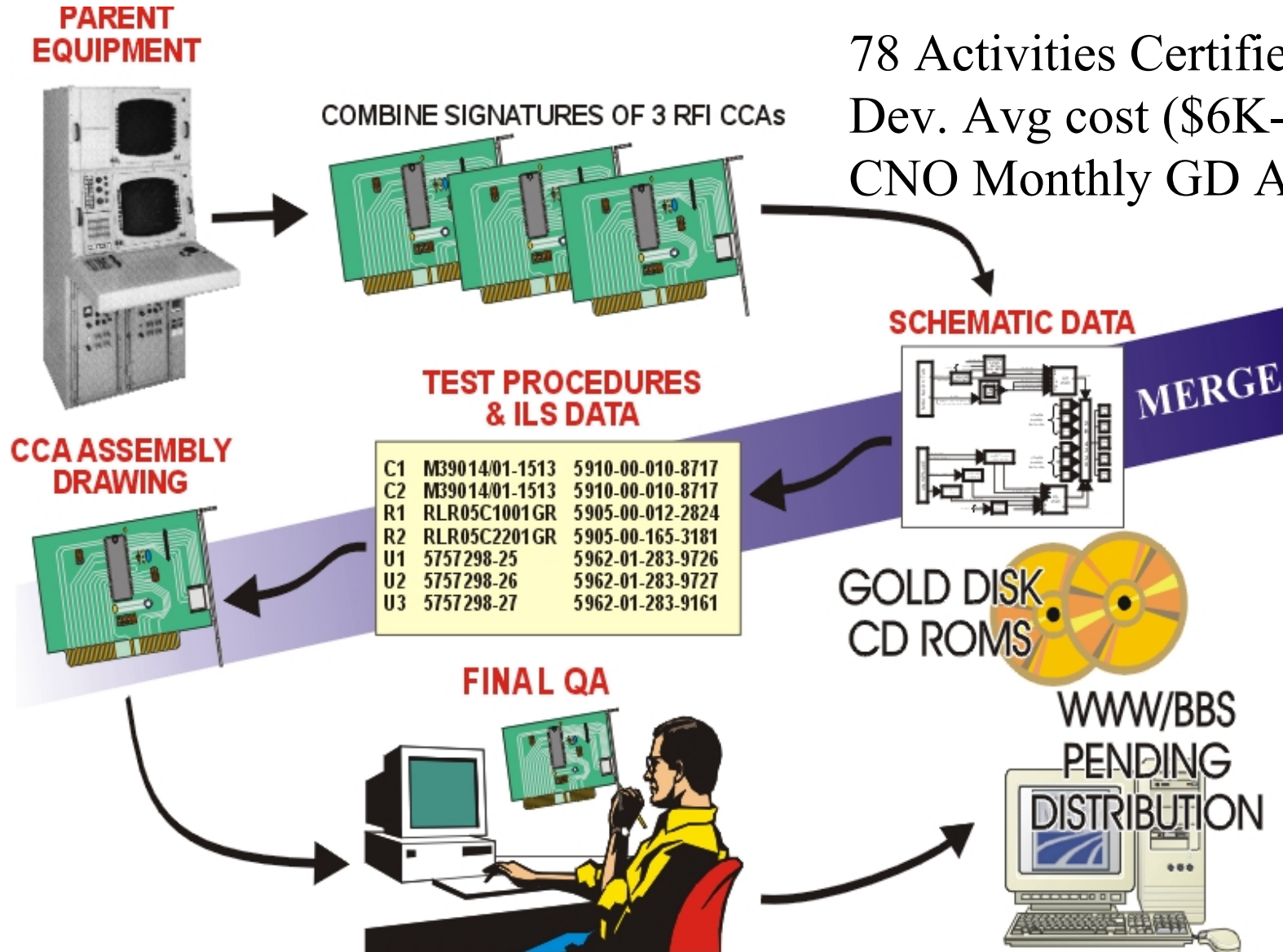# MTR Test Equipment Suite

AN/USM-646
Initial Gold Disk
Test System
(Huntron 5100DS
& Controller)

SHORTRACK 90
SWITCHER 410
HUNTRON 2000

Gold Disk Development Process

78 Activities Certified
Dev. Avg cost ($6K-10K)
CNO Monthly GD Award

Gold Disk
Selection & Development

Since 1995, the selection process for NAVSEA Gold Disk development has been based on an annual **Gold Disk Candidate List.**

Candidate List includes NAVICP-M and DLA Columbus cog CCA/EMs with ROI potential of 3 years or less.

Candidate List is ranked by (Net cost **x** annual demand) with additional Alpha-numeric sorts by NIIN and Mfg part #. CASREP data is added to Candidate Lists.

NAVICP-M and Fleet (TYCOMs) Prioritize Gold Disk candidates. NUWCDET Norfolk coordinates Navy Gold Disk development to prevent redundant development. **400** Gold Disks developed annually. Navy techs develop approximately **8%** of Gold Disks. Gold Disk backlog of over 7,500 candidates with good potential ROI.

Gold Disk Production
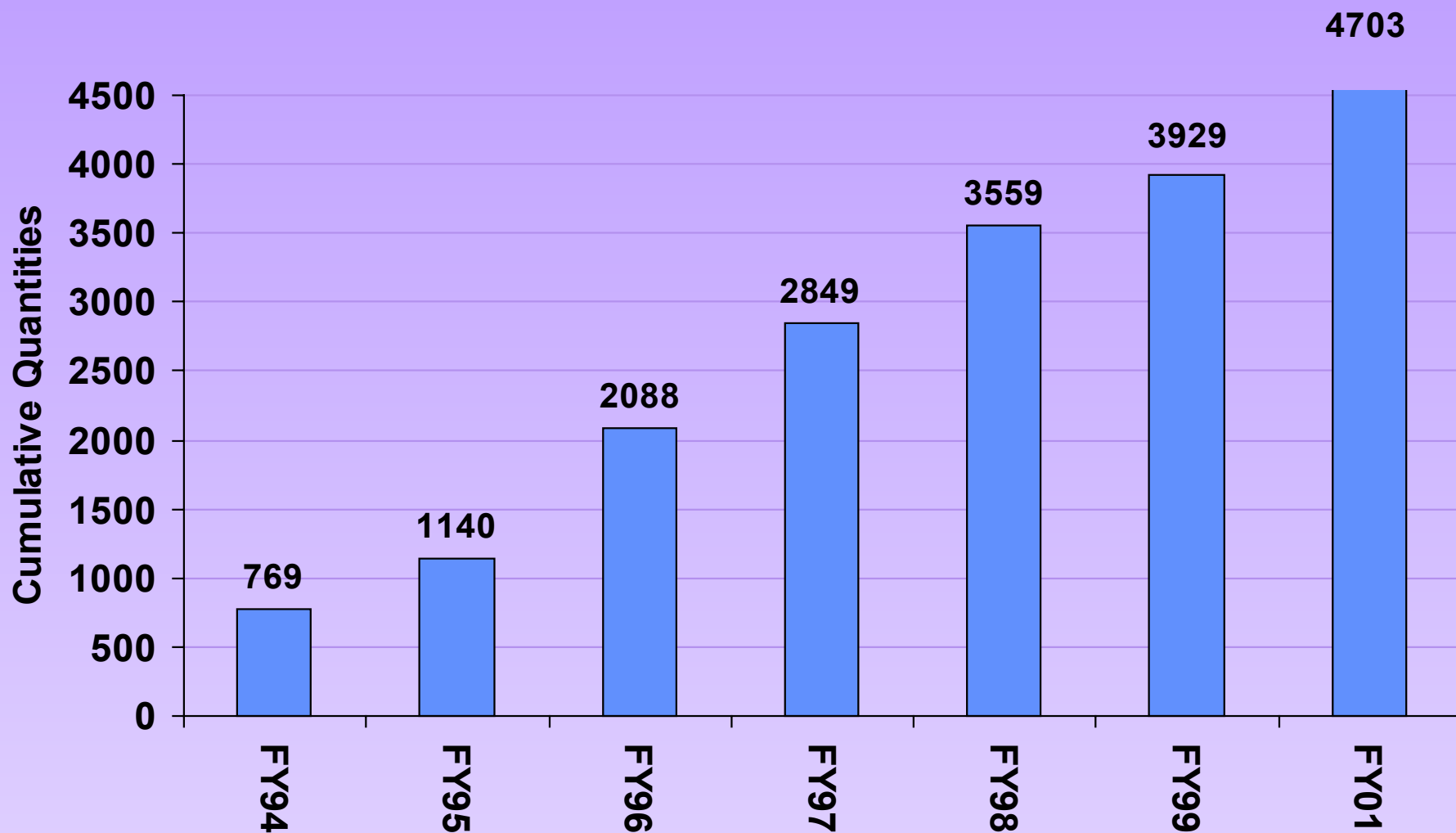
FY01 Totals; 18 Aug 2001

13

Benefits of 2M MTR Utilization

NAVAL SEA SYSTEMS COMMAND

From 1 Jan 1998 to 30 June 2001, Navy commands outfitted by NAVSEA 04M32 reported 32,673 2M repairs completed which resulted in 2,570 CASREPS averted/corrected and $101M in OPTAR cost avoidance.

Results in reduced requirements for shipboard and shore spare CCA/EMs.

Promotes sailor "Quality of Life" by allowing them to be self sufficient. Also 2M MTR training used as a reenlistment incentive and CNO Monthly Gold Disk Award provides $500 and LOC signed by a flag officer.
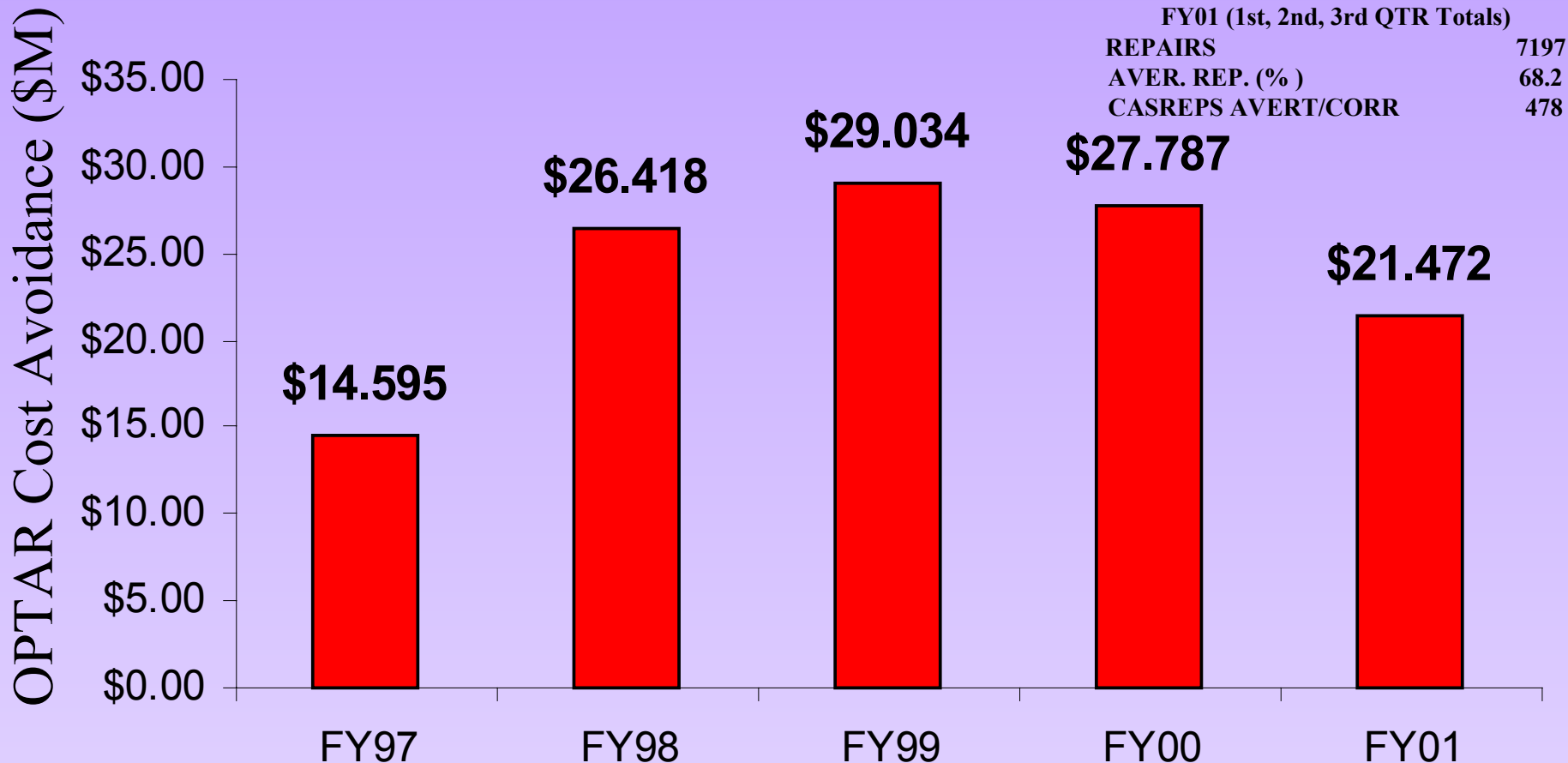
Module Test and Repair capabilities onboard ships can reduce system level tech assist visits.

Gold Disks can reduce costs for full diagnostics ATE Test Program Sets.

Module Test & Repair Tracking System Data

NAVSEA — NAVAL SEA SYSTEMS COMMAND

FY97		FY98		FY99		FY00	
REPAIRS	727	REPAIRS	8012	REPAIRS	9039	REPAIRS	9373
AVE. REP. (%)	47.88	AVER. REP. (%)	66.13	AVER. REP. (%)	66.17	AVER. REP. (%)	69.36
CASREPS AVERT/CORR	442	CASREPS AVERT/CORR	739	CASREPS AVERT/CORR	874	CASREPS AVERT/CORR	673

FY01 (1st, 2nd, 3rd QTR Totals)

REPAIRS	7197
AVER. REP. (%)	68.2
CASREPS AVERT/CORR	478

OPTAR Cost Avoidance ($M)

FY97	FY98	FY99	FY00	FY01
$14.595	$26.418	$29.034	$27.787	$21.472

DATA DOES NOT INCLUDE ANY REPAIRS UTILIZING 2M/MTR EQUIPMENT COMPLETED AT NAVAL AND MARINE AVIATION OR MARINE GROUND MAINTENANCE ACTIVITIES.

Portable 2M REPAIR Kit

- Pace MBT-250
- Subset 2M AEL
- < 2 ft^3 storage case
- No microscope *

NAVSEA

NAVAL SEA SYSTEMS COMMAND

NAVSEA
NAVAL SEA SYSTEMS COMMAND

35 Planned
FY 02>
$85K

Pace TF 500 (New Shore IMA 2M BGA/Fine Pitch Rework Station)

Requirements for Successful Utilization of 2M MTR Capabilities

Command and higher level attention and compliance with JFMM , Volume IV, Part I, Chapter 11 including Quarterly MTRTS Reports.

Trained Personnel with NEC 1591 and Current Certification

Work center properly outfitted with 2M MTR Equipment,tools, accessories and 2M piece parts

Effective coordination between Supply and Maintenance personnel to promote screening and repair attempts when feasible for all failed circuit cards and electronic modules.